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10/536,621	05/26/2005	Masahiko Nakamori	UNU40.005APC	9275

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EXAMINER

MACARTHUR, SYLVIA

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/536,621
Filing Date: May 26, 2005
Appellant(s): NAKAMORI ET AL.

Daniel E. Altman
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed November 15, 2010 appealing from the Office action mailed June 14, 2010.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1-4, 7, 13, and 15-22 are pending in the application. Claims 22 has been withdrawn, and thus claims 1-4, 7, 13, and 15-21 stand finally rejected, and are the subject of this appeal.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

Information Disclosure Statement

The IDSs dated 12/1/2010 and 1/5/2011 have been considered by the examiner and are attached herewith.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The grounds of the rejections are clarified below due to typographical errors that misspelled the inventor's name (Ihsikawa et al) and recited the incorrect patent number of the JP patent to (Shimomura et al).

Note that this does not constitute a new ground of rejection as it is placed in this grounds of rejection statement purely for consistency for the Board

Claims 1-4, 7, 13, and 15-21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ihsikawa et al (US 2002/0042243) in view of Shimomura et al (JP 2002-075933).

WITHDRAWN REJECTIONS

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner.

Claims 1, 7, 13, and 15-21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (JP 11-77517) in view of Halley (US 6,361,647) and Shimomura et al (JP 2002-075933).

Claims 1-4 and 7 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Toru (JP 2002-324770) in view of Halley (US 6,361,647) and Shimomura et al (JP 2002-075933).

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

Patent Number	Inventor(s) Name	Publication Date
US 2002/0042243	Ihsikawa et al	04-2002

JP 2002-075933

Shimomura et al

03-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 7, 13, and 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ihsikawa et al (US 2002/0042243) in view Shimomura et al (JP 2002-075933).

Regarding claims 1-4, and 16-21: Ihsikawa et al teaches a CMP apparatus wherein the polishing pad 21 includes a transparent window plate 31 (light transmitting region) and a processing region see abstract and figures esp. Figs 2, 3 and 9. Recall that the actual comparison of (D) to the wafer material depends upon the size of the substrate which is not part of the apparatus and is interpreted as a matter of an intended use. Nevertheless, Figure 2 illustrates that the transmitting region is less than the wafer 17.

Regarding the wavelength range used to determine the light transmittance: Figure 12 recited that the wavelength ranges from 400 to 800 nm when determining the reflective spectra, it would have been obvious for one ordinary skill in the art at the time of the claimed invention to try and use the same wavelength range to determine the light transmittance with a reasonable expectation of success.

See Ihsikawa et al also teaches that it is conventional to construct the polishing pad both the polishing region and light transmitting region of foam polyurethane see [0016], [0163], [0164], [0168] and [0169].

According to [0186] the thickness of the pad is 2 micrometers.

Ihsikawa et al fails to teach that the specific type of foam is a fine-cell foam and that polyurethane foam comprises other materials as those recited in claims 1 and 20.

The prior art of Shimomura et al teaches a pad comprising three layers wherein (polishing layer) 1, (resin layer) 2, and (laminate) 3. Sections [006] – [007] discuss the specific materials used to construct each layer of those materials Shimomura et al suggest that polyurethane foam is known and further comprises other materials within the polyurethane resin, see organic isocyanate, polyol, and chain extenders among the materials listed. Note that Ihsikawa et al teaches the difference in materials between the polyurethanes in the polishing and transmitting regions based upon the function of the different regions. The motivation to construct the pad of Ihsikawa et al with the material as suggested by Shimomura et al is that the materials provide the optimal combination of flattening results and monitoring capability for a CMP pad so that the pad can perform both polishing and monitoring function for a wafer.

Regarding claims 17-19 and 21: The physical properties of the layers are also taught by Shimomura et al and are an inherent property of the chosen material of construction, note a fine cell foam is taught with the range of diameter as 10-50 micrometers or less see [0013] of Shimomura et al. See also in paragraphs [0031] and [0053] of Ihsikawa et al the compressive elastic module, material of construction and transmittivity are taught in Ihsikawa et al. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention

to modify the apparatus of Ishikawa et al to provide the material of construction of the pad that would provide the optimal properties to provide both polishing and monitoring of a wafer.

Regarding claim 2: The light transmittance of the light transmitting region of Ihsikawa et al is being monitoring in the apparatus of Ihsikawa et al it would have been obvious to try to determine the rate of change of transmittance as recited in claim 2 as the values would be available and well within the skill of one of ordinary skill in the art who is determining quality of the pad and its ability to polish and monitor the quality of polishing the wafer and whether the endpoint has been reached. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the apparatus of Ishikawa et al to determine the rate of change % as recited.

Regarding claim 3: See 89% transmissivity is recited in [0187] in Ihsikawa et al.

Regarding claim 4: Section [0053] of Ihsikawa et al recites that the transmissivity is 22% or greater. See Fig. 16 wherein the differences among light transmittance is 5% or less.

Regarding claim 7: The shape is rectangular, see the Figures of Ihsikawa et al

Regarding claim 13: See Figures.

Regarding claim 15: See [0091] and [0185] of Ihsikawa et al teach grooves.

It is further the examiner's position that the actual percentages of the light transmittance are an inherent property of the material of construction. Since the prior of Shimomura et al uses the same materials of construction as the present invention, it is opined that the properties such as transmittance, Asker D hardness and compressibility of the fine-cell polyurethane foam are inherently the same or within the range of those in the present invention.

(10) Response to Argument

Appellant argues on page 12 the last paragraph that joins page 13, that the prior art of Ihsikawa et al fails to teach or suggest the wavelength range in connection with the light transmittance. It is noted that Ihsikawa illustrated in Fig.12 the claimed wavelength range of 400 - 800 nm for the reflective spectrum and was silent to the wavelength range used to evaluate that taught light transmittance. It is the examiner's position that since reflective spectrum and transmittance are properties that a determined along a wavelength range, it would be obvious to try to use the same wavelength range used to determine the transmittance and transmittivity as already used within the apparatus with a reasonable expectation of success. Note Ihsikawa et al does recite a transmissivity of 89% in [0187] in Ihsikawa et al. and also section [0053] of Ihsikawa et al recites that the transmissivity is 22% or greater.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Sylvia MacArthur

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